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Higher Education and Social Mobility in Germany

To say that the period 1850–1930 brought dramatic changes in the relationship between higher education and the German social order is to contribute nothing to knowledge. Given the rapid pace of industrialization and urbanization in these years one could hardly expect the educational system to have remained immune. In any event the more manifest changes have long been documented. This is particularly true in the case of the background characteristics of the university students. German statisticians, reflecting the contemporary concern with the changes at work, were far ahead of their counterparts elsewhere in the collection and analysis of data on the origins of students according to father's occupation, religion, secondary schooling and so on. The results have provided the basis for a number of studies of the social transformation of the German university.¹ Indeed for the period under consideration more is known about the origins of German university students than about the backgrounds of students in any other country.

But do we know enough? No, we do not, because none of the existing studies has carefully examined the relationship between the social origins of university students and the social origins of the populations at risk. It should be noted that the subject

1. Recent studies based on these results include Werner Conze, "Sozialgeschichte 1850–1918," *Handbuch der deutschen Wirtschafts- und Sozialgeschichte*, ed. by Hermann Aubin and Wolfgang Zorn (Stuttgart, 1976), 2:675–78; Konrad H. Jarausch, "The Social Transformation of the University: The Case of Prussia, 1865–1914," *Journal of Social History*, 12 (1979), 609–636; Hartmut Kaelble, "Sozialer Aufstieg in Deutschland 1850–1914," *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte*, 60 (1973), 41–71; Hartmut Kaelble, "Chancenungleichheit und akademische Ausbildung in Deutschland 1910–1960," *Geschichte und Gesellschaft*, 1 (1975), 121–49; Hermann Mitgau, "Soziale Herkunft der deutschen Studenten bis 1900," *Universität und Gelehrtenstand 1400–1800*, ed. by Hellmuth Roessler and Guenther Franz (Limburg, 1970), 233–68; Hans-Werner Pohl, *Sozialgeschichte des Hochschulwesens* (Munich, 1978), 277–92, 311–16; Reinhard Riese, *Die Hochschule auf dem Wege zum wissenschaftlichen Großbetrieb* (Stuttgart, 1977), 40–48; Fritz K. Ringer, *Education and Society in Modern Europe* (Bloomington, 1979), 70–113; Wolfgang Zorn, "Hochschule und Höhere Schule in der deutschen Sozialgeschichte der Neuzeit," *Spiegel der Geschichte. Festgabe für Max Braubach zum 10. April 1964*, ed. by Konrad Repgen and Stephan Skalweit (Münster, 1964), 321–39.

can be approached from two distinct and equally legitimate directions. It is important to know about the social composition of student bodies even if the degree to which it reflects the larger social order is unknown. It is important because it helps us to understand the dynamics of student subcultures and of recruitment into the professions. But to assess the likelihood that those of specific social backgrounds will receive a higher education we must also consider the sizes of the relevant social groups and age cohorts. Others have compared enrollment figures with proxies for the populations at risk.² Yet no study of the social transformation of German higher education or of any other system of higher education has introduced the precision needed if we are to understand the dimensions of the changes in question. It is a gap which this chapter attempts to narrow.

The Changes in Social Origins:

Between 1850 and 1930 the number of students at German institutions of higher education increased tenfold, from about 13,000 to 133,000.³ But one would not expect this rate of growth to be the same for those of varying social origins, and it was not. Generally speaking, the numbers from the middle ranks of the social order increased more rapidly than the numbers from more privileged backgrounds, and within each of these groupings there was wide variation. The reasons will be considered below. The focus here is different; it is on the impact of the differing enrollment trends on the composition of the student bodies of universities and other postsecondary institutions.

To facilitate comparison, occupations considered have been grouped into six broad categories:

- (1) The Educated Elite, composed of high government officials and lawyers, professors and teachers with university degrees, clergymen, doctors, dentists, pharmacists, veterinarians and military officers;
- (2) the Entrepreneurial Class, comprising industrialists and merchants or bankers;
- (3) the Old Middle Class, consisting of artisans and shopkeepers;
- (4) the New Middle Class, including free professionals and teachers without university degrees, middle-ranking government employees, and white-collar workers in private firms;
- (5) the Farming Sector, consisting of owners of landed estates (*Gutsbesitzer*) or land-owning peasants; and
- (6) the Working Class, defined as workers employed by the government, non-agricultural workers in private firms, and agricultural workers.

Because of the nature of their intended careers, students of pharmacy and dentistry are grouped with students of medicine. Students of cameralistics, the policy sciences (*Staatswissenschaften*) and related subjects are grouped with law students. Students of the humanities are distinguished from students of mathematics and the natural sciences even though most universities united them in a single faculty. For the period

2. Jarausch, 627; Kaelble, "Chancenungleichheit," 127-31; Mitgau, 244-45; *Preußische Statistik*, 167 (1901), 145-52.

3. Prahl, 381-82; Riese, 339-40.

preceding World War One the emphasis is on the students from Baden, Prussia and Württemberg, the three states for which the data are richest. (Together these states accounted for about 70% of Germany's university students.) For the period following the war data are available for German higher education generally, and they provide the basis for most of the analysis.⁴

The basic trends can be summarized succinctly. Judging from Württemberg, the state for which the data are most abundant, there was a pronounced decline between the 1830s and the 1930s in the proportion of students from the educated elite and more gradual declines in the proportions from the old middle class and the farming sector. By contrast, the proportions from the entrepreneurial class and the new middle class increased significantly. There was also a pronounced growth in the percentage from the working class, although in this case the numbers were small. In two periods the pace of change was particularly rapid: the 1870s and 1920s. Not coincidentally these were also the periods in which the total enrollment grew most rapidly.

In the periods for which comparable data are available the trends in Baden and Prussia closely paralleled those in Württemberg. It should be noted, too, that the trends for the country as a whole around 1930 were consistent with those in Württemberg and in prewar Prussia. This is particularly true if the comparisons are confined to the male students. Not surprisingly the female students, whose number grew rapidly in the 1920s, tended to come from more privileged backgrounds than the male students. The effect was to intensify some of the long-run trends (the decline in the proportion from the farming sector and the old middle class and the rise in the proportion from the entrepreneurial class) and to moderate or reverse others (the decline in the proportion from the educated elite and the rise in the proportions from the new middle class and the working class). But the number of female students was still relatively small—they accounted for 14.5% of the German students in 1928 and for 18.6% in 1931—and hence had little effect on the general trends (Table 1). Since it is far from obvious whether the total or the male enrollment should be used for comparative purposes, a flexible approach has been adopted; the tables present data for both male and female students, but the discussion leaves the female students out of account.

Of the individual faculties by far the most open (those with the highest proportions from modest origins) were the Catholic theological faculties. Between the mid-19th century and 1914 most of their students, usually more than two-thirds, were the sons of artisans, small craftsmen, peasants or members of the working class. At the other extreme, the educated elite and the entrepreneurial class never contributed more than one student in 10. Over time the most pronounced trends were the decline in the proportion from the old middle class and the rise in the proportion from the working

4. The data concerning the students are from Ludwig Cron, *Der Zugang der Badener zu den badi-schen Universitäten und zur Technischen Hochschule Karlsruhe in den Jahren 1869 bis 1893* (Heidelberg dissertation, [1897]), 73–78; Albert Rienhardt, "Das Universitätsstudium der Württemberger seit der Reichsgründung," *Württembergische Jahrbücher für Statistik und Landeskunde*, 1916, 256–79; Andreas Wuerthner, "Das Hochschulstudium der Württemberger nach dem Kriege," *Württembergische Jahrbücher für Statistik und Landeskunde*, 1932–33, 272–87; *Preußische Statistik*, 106 (1892), 326–29; 136 (1896), 328–41; 193 (1905), 34–37; 236 (1913), 34–37; *Deutsche Hochschulstatistik*, ed. by Hochschulverwaltungen, Sommerhalbjahr 1928, 20–61, and Sommerhalbjahr 1931, 12–53.

Table 1: University Attendance by Fathers' Occupations: Rates and Indices of Selectivity for General Occupational Categories

Württemberg (Male):

	<u>1873</u>	<u>1879</u>	<u>1885</u>	<u>1891</u>	<u>1897</u>	<u>1903</u>	<u>1909</u>	<u>1933</u>
Rates:								
Educated Elite	23.06	28.06	26.40	25.17	23.73	24.48	32.30	35.61
Entrepreneurial Class	7.88	12.03	16.46	9.78	8.49	6.99	8.12	15.62
Old Middle Class	.64	1.02	1.27	1.12	.98	1.24	1.72	3.35
New Middle Class	8.88	14.94	14.58	10.94	9.73	8.66	10.99	9.84
Farming Sector	.19	.37	.36	.26	.25	.29	.36	.58
Working Class	.28	.57	.56	.54	.46	.34	.51	.83
Other	6.31	10.11	15.92	12.02	14.40	12.59	41.23	7.46
Total	.92	1.49	1.66	1.41	1.38	1.39	1.83	3.33
N	543	852	972	911	987	1060	1384	3660.90

Indices of

Selectivity:

Educated Elite	25.21	18.86	15.86	17.84	17.26	17.57	17.64	10.71
Entrepreneurial Class	8.61	8.09	9.89	6.93	6.18	5.02	4.44	4.70
Old Middle Class	.70	.69	.77	.80	.71	.89	.94	1.01
New Middle Class	9.71	10.04	8.76	7.75	7.08	6.22	6.00	2.96
Farming Sector	.21	.25	.21	.18	.19	.21	.19	.17
Working Class	.31	.38	.34	.38	.33	.24	.28	.25
Other	6.90	6.80	9.57	8.52	10.48	9.04	22.52	2.24

Baden (Male):

	<u>1873</u>	<u>1878</u>	<u>1883</u>	<u>1888</u>	<u>1893</u>
Rates:					
Educated Elite	30.28	23.95	29.35	36.70	29.76
Entrepreneurial Class*	8.31	5.56	13.29	14.94	12.65
Old Middle Class*	.70	.60	1.00	1.90	2.20
New Middle Class**	9.12	6.61	10.23	14.59	12.26
Farming Sector	.23	.20	.19	.35	.56
Working Class**	.35	.38	.63	.65	.57
Other	42.83	34.48	44.74	38.62	27.51
Total	.94	.83	1.24	1.86	1.95
N	481.60	421.60	646.40	1029.60	1176.80

Indices of

Selectivity:

Educated Elite	32.47	29.02	23.71	19.69	15.26
Entrepreneurial Class*	8.88	6.74	10.74	8.01	6.49
Old Middle Class*	.74	.73	.81	1.02	1.13
New Middle Class**	9.75	8.01	8.26	7.83	6.29
Farming Sector	.24	.25	.15	.19	.29
Working Class**	.37	.46	.51	.35	.29
Other	45.77	41.78	36.14	20.72	14.11

Table 1 (continued)

Prussia (Male):

	<u>1887</u>	<u>1893</u>	<u>1902</u>	<u>1911</u>
Rates:				
Educated Elite	29.74	24.31	25.28	31.52
Entrepreneurial Class)				
Old Middle Class)	2.37	1.94	2.49	3.19
New Middle Class**	7.59	5.14	5.59	6.50
Farming Sector	.50	.42	.54	.67
Working Class**	.19	.15	.16	.25
Other	7.18	5.90	4.11	8.46
Total	1.47	1.21	1.41	1.67
N	14404.50	12272.60	17361.30	23807.50

Indices of

Selectivity:

Educated Elite	20.24	20.18	17.92	18.85
Entrepreneurial Class)				
Old Middle Class)	1.16	1.61	1.76	1.91
New Middle Class**	5.16	4.27	3.96	3.89
Farming Sector	.34	.35	.38	.40
Working Class**	.13	.12	.12	.15
Other	4.89	4.90	2.91	5.06

Germany:

Male

Female

	<u>1928</u>	<u>1931</u>	<u>1928</u>	<u>1931</u>
Rates:				
Educated Elite	51.62	43.92	16.85	20.24
Entrepreneurial Class	9.25	11.60	2.43	4.18
Old Middle Class	3.63	3.21	.65	.86
New Middle Class	8.02	6.52	1.59	1.97
Farming Sector	.69	.65	.08	.10
Working Class	.32	.43	.02	.05
Other	53.78	15.45	10.03	4.52
Total	3.02	2.79	.66	.86
N	74391.40	68566.70	10168.90	21010.80

Indices of

Selectivity:

Educated Elite	17.10	15.72	25.73	23.58
Entrepreneurial Class	3.06	4.15	3.71	4.87
Old Middle Class	1.20	1.15	1.00	1.00
New Middle Class	2.66	2.33	2.43	2.29
Farming Sector	.23	.23	.12	.12
Working Class	.11	.15	.03	.06
Other	17.81	5.53	15.31	5.26

*Based on the assumption that the ratio of the rate for merchants to that for small shopkeepers was the same in given years as in Württemberg.

**Based on the assumption that the ratio of the rate for middle-ranking civil servants to working-class government employees was the same in given years as in Württemberg.

class. Of course, because of the celibacy of the Catholic clergy these faculties did not contribute to upward mobility in the long run. Indeed, to the extent they attracted youths of modest origins who would otherwise have enrolled in the secular faculties, they tended to reduce the rate of upward mobility.

The pattern in the Protestant theological faculties was different. The majority of the students, usually at least 70%, came either from the educated elite or from the new middle class. In contrast, the sons of artisans, shopkeepers, peasants and members of the working class rarely accounted for more than a fifth of the total. The most striking trend was the rise in the proportion from the new middle class, evident throughout the period. This came largely at the expense of youths from the peasantry and the old middle class, although in the 1920s there was also a sharp drop in the proportion from the educated elite. It should be noted that usually about three-fourths of those from the educated elite—and more than a quarter of the total enrollment—were the sons of clergymen. Their number did not fluctuate much over time; put in economic terms, the elasticity of substitution was lower for the sons of pastors than it was for those of other origins.

For the humanities and the sciences the basic patterns and trends had much in common. In both cases enrollment was relatively low until the 1890s and then grew rapidly. In both cases students from the new middle class and the working class contributed disproportionately once rapid growth began, largely at the expense of the old middle class and the peasantry. In both self-recruitment was slight; most students in the humanities and sciences presumably expected to become teachers at the secondary or tertiary levels, but only about one in 20 was the son of a teacher at these levels. In both the proportion who were the sons of primary school teachers grew impressively before World War I and then, judging by the figures for Württemberg, declined. The only major differences between the patterns in the humanities and in the sciences were in the relative contributions of certain occupational sectors. Generally speaking, the scientific disciplines attracted larger proportions from the entrepreneurial class and the old middle class and a smaller proportion from the new middle class.

Throughout students of law and related subjects came from more privileged backgrounds. Over time, however, recruitment to these fields became more heterogeneous and democratic. Most striking were the decline in the proportions from the educated elite and the farming sector and the rise in the proportions from the entrepreneurial class and the new middle class. These trends were most pronounced when overall enrollment grew most rapidly, that is in the 1870s, 1890s, and 1920s. Important in this regard were shifts in the degree of self-recruitment. Self-recruitment was greater when total enrollment was low; the sons of lawyers and high-level bureaucrats were less responsive to general fluctuations in the relative popularity of legal studies than were students of other backgrounds.

With regard to selectivity there was little to distinguish the medical faculties from the law faculties. The proportions coming from each of the occupational categories were roughly the same, self-recruitment was comparable, and changes over time tended to be in the same directions and of similar dimensions. There seems even to have been a close inverse relationship between their respective enrollments: when recruitment to the law faculties grew rapidly and became less exclusive, as in the 1890s and the early and mid-1920s, recruitment to the medical faculties tended to stagnate

or decline and to become more exclusive, and vice versa. This suggests that these faculties functioned as rather good substitutes, with large numbers of students, particularly those of relatively humble origins, gravitating to one or the other in response to changes in perceived job opportunities.

There remains the matter of the students in other institutions of higher education—the *Technische Hochschulen* (schools of engineering), the *Handelshochschulen* (business schools) and the other specialized institutes and academies of university rank. Unfortunately for the period prior to World War I there are data covering an extended period for only one such institution, the *Technische Hochschule* at Karlsruhe in Baden. But these data together with those collected in the late 1920s and early 1930s for all of these institutions do suggest some general relationships.

To begin with, the *Technische Hochschulen*, which always accounted for most of the students in question, were no more open than the universities to youths of modest origins. Indeed between 1869 and 1893 the *Technische Hochschule* in Karlsruhe usually attracted proportionately more students from the educated elite and the entrepreneurial class than did Baden's two universities and proportionately fewer from the old middle class, the peasantry and the working class. The pattern was somewhat different in Germany as a whole around 1930, but the proportion from relatively humble origins was still somewhat smaller at the *Technische Hochschulen* than at the universities.

The other institutions can be divided into two groups. Those that prepared for careers in business, the bureaucracy or the free professions (the *Handelshochschulen* and the schools of agronomy, forestry, mining and veterinary medicine) exhibited patterns similar to those found at the universities. The chief difference was that smaller proportions of their students came from the educated elite and larger proportions from the entrepreneurial class and, in the schools of agronomy and veterinary medicine, from the farming sector. Institutions in the second group, which chiefly prepared for teaching careers at the secondary level, had much different appeals. The great majority of their students (more than 90% in 1931) came from the old middle class, the new middle class, the peasantry and the working class. But, as with the institutions in the first group, the numbers involved were relatively small; in 1931 the two groups together accounted for only 8.54% of the total enrollment in higher education. As a result, their impact on the overall distribution of students according to social origins was small; the pattern for German higher education as a whole differed little from that for the German universities.

The Pattern of Selectivity:

What lay behind these trends? If we are to understand the variations in the demand for higher education we need additional information. Most important, we need to know about the populations at risk. Was the decline in the proportion of students from the farming sector chiefly a reflection of a shrinking rural population? Did the rising proportions from the new middle class and the working class result primarily from growing per capita demand for higher education in these classes or from the growth of the size of these classes? More generally, was German higher education becoming more open or more exclusive? To answer such questions, data concerning

the social origins of students must be related to changes in the occupational structure of the population.

Although others have recognized this, few have examined the relationship systematically. The basic problem is that there can be wide differences among occupational groups in the likelihood that workers will have children in the age cohort responsible for most students at institutions of higher education.⁵ Consider, for instance, the case of landless agricultural laborers. They can constitute a large proportion of the total work force (in Germany in 1895 they accounted for more than one-fifth of all male workers), yet relatively few were old enough to have children aged 20 or more, and a large proportion of those old enough were unmarried. The situation was similar for other large occupational groups, including the armed services, apprentices and journeymen, and, to a lesser degree, the industrial working class. Alternatively, those in the educated elite and the entrepreneurial class tended to be concentrated in the age groups most likely to have children in their early 20s. This suggests that to use the distribution of males in the occupational force to assess the selectivity of universities will indicate that recruitment was more elitist than in fact it was.

To avoid this problem the following analysis is based on a different approach. It involves estimating the numbers of males and females aged 20 to 23 according to their fathers' current occupations, and using them as the denominators when calculating selectivity. Since the value of these calculations depends on the accuracy of the denominators, a discussion of the estimating procedure is in order. The estimates are based on the German occupational censuses of 1882, 1895, 1907, 1925 and 1933, particularly the data concerning males in each occupational sector by age group (30 through 39, 40 through 49, and so on) and by the number of their children under 14. These data have been used to estimate for each occupational category the number of male and female children under 14 per male aged 28 to 41, on the assumption that the typical father of a typical child under 14 was 35 years old. These results were multiplied by the number of males in the same category who, 15 years later, were aged 48 through 51, that is when the typical child would be aged 20 to 23. The procedure is designed to control both for the career mobility of fathers between the median ages of 35 and 50 and for variations in fertility among occupational groups over time. The calculations for years after 1882 are based on linear interpolations of census data, while those for years before 1882 are based on logarithmic extrapolations from the censuses of 1882 and 1907. In all cases the results have been adjusted so that they are consistent with the actual numbers aged 20 to 23 in the relevant years as given in or interpolated from the population censuses.

The adjusted results have been used to estimate the rates of university attendance for each category for which data on the social origins of students are available. To facilitate comparisons the analysis is restricted to the occupational categories most commonly used in Germany between the 1880s and 1930s. In most cases these are more general than the most specific ones used in the occupational censuses, facilitat-

5. In the interest of comparability it is desirable to define the relevant age cohort as equal in length to the average length of time students spent at universities. For present purposes this has been defined as four years, and the most appropriate cohort as that from 20 through 23. A more refined analysis would make adjustments for the variations in average time enrolled both over time and among the faculties.

ing the task of determining rates of attendance. In the remaining cases multipliers based on other sources have been used together with census data to estimate the populations at risk. The distinction between the children of university-trained teachers and the children of other teachers is based on the number of male teachers employed in the educational institutions of various types. The proportion of all male landowners whose holdings exceeded 50 hectares is the multiplier used to distinguish the children of estate owners (*Gutsbesitzer*) from those of peasants. A similar procedure has been used to estimate the proportions of the children of owners of manufacturing or commercial firms whose fathers were large-scale industrialists or merchants rather than artisans or shopkeepers. In these cases the multipliers are based on the proportions of all male owners of firms who employed more than five workers. All multipliers have been adjusted for each year considered, where necessary through linear interpolations. Admittedly these procedures are arbitrary, but experimentation with other multipliers yielded less plausible rates and trends that hardly differ from those that emerge with the procedure adopted.

Since it is desirable to relate trends within specific occupational categories to the overall pattern, indices of selectivity have been estimated as well as rates of attendance. This is a simple procedure, for it merely involves dividing the rate for the group under consideration by that for the population generally. In the tables that follow the rate is given for each occupational group and both the rate and the index of selectivity are given for the more general occupational categories.

Two additional comments concerning methodology are in order. First, to avoid the wide variation across faculties and over time in the average number of semesters that students enrolled, the focus throughout is on the number of matriculants from various occupational groups rather than on the number enrolled at specific times. Where the available data concern only the latter, the ratio of new matriculants to all students at different times within each faculty or type of institution, which can be calculated, has been used to estimate the number of matriculants from each relevant occupational group.

Second, in determining rates of attendance and indices of selectivity it obviously is desirable to consider only the students from the state for which the denominators have been calculated, and to consider all such students. This poses no problems when data are available for all German students, for Württemberg or for Baden. In other cases, however, the data present difficulties. For Bavaria and Saxony there is abundant evidence concerning the social origins of those enrolled at the states' universities, but no distinction between those from within the states and those from elsewhere. Because of the resulting risks the data for Bavaria and Saxony have not been considered in this analysis. In Prussia there are data concerning those from the state studying within the state at specific times, but none on those from the state studying elsewhere or, as for Baden, on all those from the state who ever matriculated at one of the state's universities. In this case it has been assumed that Prussian students at other German universities—their numbers can be determined independently—were similar in social origins to those studying Prussia. While the higher mobility of students from the upper strata might make the university appear less elitist,⁶ the ten-

6. Franz Eulenburg, *Die Entwicklung der Universität Leipzig in den letzten hundert Jahren. Statistische Untersuchungen* (Leipzig, 1909), 71.

dency of lower class students to exaggerate their social origins ought to cancel out this bias.⁷

In the early 1870s, judging from the evidence for Baden and Württemberg, about one quarter of the sons of high government officials and university-trained professionals in the appropriate age cohort attended universities. By the standards of the previous four or five decades this was probably a low rate. It almost certainly was lower than it had been during the enrollment boom of the 1830s when, for instance, the number of students in this group from Württemberg was a third again as large yet the number at risk was presumably much smaller. Since in the interim total enrollment had lagged behind population growth, it is likely that the rate for the educated elite had declined throughout the period.

But whatever the previous trends, following German unification the rate for the educated elite varied little. Although the number of students from this category increased significantly after 1870, the number at risk grew at about the same pace. Meanwhile the rates for other occupational groups rose, and as a result the relative position of the educated elite worsened. Thus in the two decades following unification the index of selectivity for the category fell from 25.21 to 17.84 in Württemberg and from 32.47 to 15.26 in Baden. In Prussia, judging from more aggregated data, the trend was similar. In other words, the rapid expansion of enrollment in the 1870s and 1880s worked against the perpetuation or reproduction of the established university-trained elite, the *Bildungsbürgertum*.

The subsequent decline in university enrollments—the rates of attendance of the late 1880s would not be reached again until after the turn of the century—slowed the trend but did not reverse it. The rate for the first occupational category declined even more rapidly than did the overall rate; the index of selectivity continued to decline, albeit at a slower rate than before. In the subsequent boom that characterized the decade before World War I the rate for the educated elite actually seems to have grown a little more rapidly than the overall rate. This indicates that expansion did not necessarily result in or from the democratization of the student body; universities could become more inclusive without becoming more open. But the pattern following the war suggests that beyond a certain threshold greater inclusiveness did imply greater openness. During the 1920s and early 1930s, a period of significant expansion, the overall rate increased more rapidly than the rate for the educated elite.

Disaggregating the first occupational category into its constituent groups reveals that the various rates were of the same order of magnitude. Over the period, however, the rates grew most rapidly or declined most slowly for the sons of clergymen, professors and secondary school teachers. Until the 1880s they were close to those for the other groups in the educated elite, but subsequently they tended to be higher, in part because they were less affected by the general downturn of the 1890s. The resulting pattern is at odds with the status hierarchy as conventionally defined: the children of graduates of the lower status faculties (protestant theology, philosophy, and the natural sciences) were more likely to attend universities than those of graduates of the Faculties of Law and Medicine. But the disparity would be less pronounced and might even vanish if all institutions of higher education were taken into account.

7. Riese, 43.

Thus evidence for Baden for the period before World War I and from Württemberg in 1933 suggests that the children of government bureaucrats were much more likely to attend *Technische Hochschulen*, *Handelshochschulen* and other specialized institutions than were the children of teachers and clergymen. This was particularly true in the periods such as the 1890s when total attendance at the universities was relatively low (Table 2).

A major cause of the relative decline in the rate for the educated elite was the rapidly growing demand for higher education among the children of industrialists, artisans and the owners of stores and other commercial firms. The latter trend probably began around the middle of the century, following a decade or two during which the rate for this occupational category had declined rapidly. In any event the trend was evident in Baden and Württemberg in the early 1870s, and it remained pronounced until the late 1920s. During the enrollment boom of the 1870s and 1880s the pace of growth far surpassed the more general pace. In the 1890s the downturn was less pronounced. In the decade before the war the rate again grew more rapidly than the overall rate. A comparison of the index of selectivity for Prussia in 1911 and for Germany in 1928 suggests the trend may have been reversed in the years immediately following the war, but around 1930 the demand for higher education in these occupational groups was again rising relative to that in the population generally.

Contributing to this growth in demand was the steady increase in the average size of industrial and commercial firms. The owners of large firms were always more likely to send their children to universities than were artisans and small shopkeepers, and the former group grew rapidly in size as the period progressed. Yet when the two groups are separated, the indices of selectivity reveal that through most of the period it was among the children of artisans and small shopkeepers that the demand for higher education increased most rapidly. In Württemberg the incidence for the old middle class almost tripled between 1873 and 1908, from .64 to 1.72, while that for the industrial and commercial bourgeoisie increased only from 7.88 to 8.12. The data for Prussia and Baden do not permit distinguishing between the children of small shopkeepers and the commercial bourgeoisie, but the data for students from the manufacturing sector reveal trends similar to those observed in Württemberg. In Baden between 1873 and 1893 the rate for the sons of artisans grew more rapidly than both the overall rate and that for the sons of industrialists (which failed to keep pace with the overall rate), and this was also the case in Prussia between 1902 (the first year for which the relevant data were reported) and the war. For the 1920s the evidence is fragmentary and somewhat contradictory. A comparison of the data for Prussia in 1911 and for Germany in 1928 suggests that prewar trends may have continued, but comparisons of the data for Württemberg in 1909 and 1933 and for Germany in 1928 and 1931 point to the opposite conclusion. One possibility is that the rate for the old middle class continued to rise more rapidly than that for the entrepreneurial class through the early and mid-1920s, but that around 1930 the trend was reversed, perhaps for reasons relating to the depression.

The patterns differ somewhat if the focus is on higher education generally rather than on the universities. In Baden between the 1870s and the war the propensity for students from the industrial and commercial sectors to enroll at a *Technische Hochschule* rather than at a university was usually greater than it was for those of different backgrounds, and it was usually greater for those from the industrial bourgeoisie than

Table 2: Rates of Enrollment in Higher Education: The Educated and Governing Elite

Prussia:

Universities (Male)

	<u>1887</u>	<u>1893</u>	<u>1902</u>	<u>1911</u>
Bureaucrats and Lawyers	26.03	18.23	18.10	22.08
Teachers	33.77	33.62	41.79	46.67
Clergymen	32.33	28.29	31.07	44.04
Medical Personnel	33.24	27.30	24.89	35.78
Military Officers	22.59	18.06	20.86	20.91
Total	29.74	24.31	25.28	31.52
N	3264.50	2916.80	3732.00	4709.00

Württemberg:

Universities (Male)

	<u>1873</u>	<u>1879</u>	<u>1885</u>	<u>1891</u>	<u>1897</u>	<u>1903</u>	<u>1909</u>	<u>1933</u>
Bureaucrats and Lawyers	12.75	19.71	17.95	16.70	14.75	15.89	22.98	29.27
Teachers	38.55	31.04	29.86	33.06	34.42	33.52	31.70	54.11
Clergymen	34.20	45.20	45.57	49.62	46.45	48.80	69.18	51.70
Medical Personnel	30.65	29.67	25.92	22.23	20.87	21.93	26.32	33.91
Military Officers	13.37	14.96	16.03	1.43	8.07	4.80	21.30	26.95
Total	23.06	28.06	26.40	25.17	23.73	24.48	32.30	35.61
N	220.00	286.00	284.00	290.00	316.00	323.00	384.00	792.20

Baden:

Universities (Male)

	<u>1873</u>	<u>1878</u>	<u>1883</u>	<u>1888</u>	<u>1893</u>
Bureaucrats and Lawyers	28.21	22.87	28.78	33.81	30.32
Teachers	39.66	28.48	25.63	22.22	26.10
Clergymen	26.95	18.36	32.49	43.50	33.75
Medical Personnel	43.86	30.74	34.95	56.58	37.22
Military Officers	8.82	20.78	19.95	26.72	13.25
Total	30.38	23.95	29.35	36.70	29.76
N	144.80	134.40	180.00	247.20	225.60

Table 2 (continued)

Baden:

Technische Hochschule (Male)

	<u>1873</u>	<u>1878</u>	<u>1883</u>	<u>1888</u>	<u>1893</u>
Bureaucrats and Lawyers	26.07	19.93	8.06	13.58	20.77
Teachers	17.24	13.62	6.41	7.66	8.48
Clergymen	12.08	7.87	5.69	6.21	8.62
Medical Personnel	11.44	13.66	5.32	12.18	11.10
Military Officers	17.63	18.70	3.63	8.91	8.43
Total	19.47	16.11	6.65	11.05	14.35
N	92.80	90.40	40.80	74.40	108.80

Germany: Higher Education of the Educated and Governing Elite

	Male		Female	
	<u>1928</u>	<u>1931</u>	<u>1928</u>	<u>1931</u>
Universities	51.62	43.92	16.85	20.24
Technische Hochschulen	8.49	8.90	.76	1.10
Other	3.53	2.69	.73	1.67
All	63.64	55.52	18.33	23.01
N	20048.90	18795.30	5785.10	7767.70

Note: "Bureaucrats" are high government officials; "Teachers" are professors and teachers with university degrees; "Medical Personnel" are doctors, dentists, pharmacists and veterinarians.

for the sons of artisans. But even when the *Technische Hochschulen* and the other specialized institutions are included in the calculations, the trends noted with reference to the universities persist. Over the period as a whole the demand for higher education grew more rapidly in the industrial and commercial sectors than it did in the population as a whole, and within these sectors it grew more rapidly in the old middle class than in the entrepreneurial class (Table 3).

Of the general occupational categories the one most responsible for the large growth in total enrollment in the period considered was the new middle class. In Württemberg, for instance, male students in this category—the sons of middle-ranking bureaucrats, school teachers, professionals without academic training and white-collar workers in private firms—accounted for 37.6% of the total growth in male enrollment between 1873 and 1933. (The actual numbers increased ninefold.) Between 1887 and 1912 the new middle class was responsible for 34.4% of the increase in the total number of Prussian students. (The numbers increased from 2,999 to 6,238.)

But these impressive gains resulted less from rising rates of university attendance than from the rapid growth in the numbers at risk. In fact, in all cases examined the rate for the new middle class failed to keep pace with the overall rate. Disaggregated, the indices of selectivity for the sons of free professionals (journalists, musicians, architects, etc.) and teachers tended to grow over time, while those for sons of middle-ranking bureaucrats and white-collar workers in private firms tended to fall. This had the effect of widening the disparities among these occupational groups. By the end of

Table 3: Rates of Enrollment in Higher Education: The Entrepreneurial Class and the Old Middle Class

Württemberg: Universities (Male)								
	<u>1873</u>	<u>1879</u>	<u>1885</u>	<u>1891</u>	<u>1897</u>	<u>1903</u>	<u>1909</u>	<u>1933</u>
a.	2.24	6.36	8.46	5.90	4.17	4.80	4.65	
b.	32.21	23.36	47.40	23.44	22.98	14.95	21.33	
c.	.61	.79	1.13	.87	.77	1.02	1.44	
d.	.81	1.62	1.87	2.06	1.72	2.00	2.64	
a + b.	7.88	12.03	16.46	9.78	8.49	6.99	8.12	15.62
c + d.	.64	1.02	1.27	1.12	.98	1.24	1.72	3.35
a + c.	.64	1.08	1.51	1.21	1.05	1.41	1.83	
b + d.	1.55	2.89	4.32	3.57	3.54	3.25	4.64	
Total	.80	1.41	2.06	1.71	1.61	1.82	2.48	4.96
N	123.00	202.00	290.00	258.00	260.00	299.00	384.00	1112.40

Baden: Universities (Male)					
	<u>1873</u>	<u>1878</u>	<u>1883</u>	<u>1888</u>	<u>1893</u>
a.	3.32	2.73	5.13	6.23	5.39
c.	.66	.49	.77	1.82	2.05
a + c.	.76	.60	1.05	2.18	2.38
b + d.	1.67	1.64	4.10	5.14	5.38
Total	.95	.84	1.80	2.97	3.23
N	105.60	92.00	201.80	348.80	412.80

Baden: Technische Hochschule (Male)					
	<u>1873</u>	<u>1878</u>	<u>1883</u>	<u>1888</u>	<u>1893</u>
a.	7.15	7.60	5.13	3.17	4.69
c.	.57	.48	.11	.26	.36
a + c.	.80	.83	.44	.50	.79
b + d.	1.64	2.08	.87	.79	1.35
Total	.82	.87	.31	.41	.65
N	90.40	95.20	34.40	48.00	83.20

Prussia: Universities (Male)				
	<u>1887</u>	<u>1893</u>	<u>1902</u>	<u>1911</u>
a.			5.97	6.88
c.			.86	1.02
a + c.	1.59	1.20	1.52	2.00
b + d.	4.14	3.51	4.34	5.33
Total	2.37	1.94	2.49	3.19
N	5051.30	4367.40	6241.60	8229.50

Table 3 (continued)

Germany: Higher Education

	Male		Female	
	1928	1931	1928	1931
<u>Universities</u>				
a + b.	9.25	11.60	2.43	4.18
c + d.	3.63	3.21	.65	.86
Total	4.50	4.33	.93	1.30
N	21182.00	19551.40	4383.20	5843.40
<u>Technische Hochschulen</u>				
a + b.	3.70	4.91	.13	.26
c + d.	.65	.72	.01	.03
Total	1.12	1.28	.03	.06
N	5281.50	5766.20	152.60	284.00
<u>Other</u>				
a + b.	1.31	1.46	.09	.38
c + d.	.41	.56	.03	.10
Total	.55	.68	.04	.14
N	2601.00	3053.80	177.20	616.50
<u>All</u>				
a + b.	14.26	17.97	2.65	4.81
c + d.	4.69	4.49	.70	.99
Total	6.17	6.28	1.00	1.50
N	29064.50	28371.40	4713.00	6743.90

Note: a. industrialists
 b. merchants, bankers
 c. artisans
 d. shopkeepers

the period the rates for free professionals and teachers were more than half that for the educated elite, while the rate for middle-ranking bureaucrats was much lower and that for white-collar workers in private firms was lower still (Table 4).

The next general category, the farming sector, contributed relatively few students, especially when the numbers at risk are taken into account. Although the rate of attendance grew over time, it started from a low base and always remained far below the overall rate. Around 1930 it was less than one-quarter that of the cohort generally. The rate for those whose fathers owned large estates was much higher, but they constituted only a small fraction of farmers' sons and hence had little effect on the overall pattern. The rates and indices of selectivity for the farming sector as a whole are not much higher than for the land-owning peasantry (Table 5).

Table 4: Rates of Enrollment in Higher Education: The New Middle Class

Württemberg: Universities (Male)								
	<u>1873</u>	<u>1879</u>	<u>1885</u>	<u>1891</u>	<u>1897</u>	<u>1903</u>	<u>1909</u>	<u>1933</u>
e.	6.76	9.19	3.84	3.96	4.73	2.20	3.65	19.14
f.	9.13	15.78	18.18	14.77	13.10	14.90	24.36	19.20
g.	10.48	18.02	16.45	12.77	11.94	10.30	14.34	11.01
h.	3.05	5.63	4.82	3.03	3.41	2.80	2.66	5.41
Total	8.88	14.94	14.58	10.94	9.73	8.66	10.99	9.84
N	104.00	185.00	210.00	199.00	234.00	255.00	351.00	1242.10

Baden: Universities (Male)					
	<u>1873</u>	<u>1878</u>	<u>1883</u>	<u>1888</u>	<u>1893</u>
e.	4.81	0	5.88	8.52	14.72
f.	15.68	8.50	16.68	25.69	26.15
g.	6.37	7.37	9.41	13.35	11.37
h.	4.10	3.07	3.27	4.81	4.36
Total	9.12	6.61	10.23	14.59	12.26
N	76.40	63.00	114.90	198.90	205.40

Baden: Technische Hochschule (Male)					
	<u>1873</u>	<u>1878</u>	<u>1883</u>	<u>1888</u>	<u>1893</u>
e.	3.61	11.14	2.94	3.87	2.45
f.	10.26	4.52	.74	2.55	4.60
g.	6.37	7.02	3.95	4.50	6.87
h.	2.05	1.42	.67	.27	.15
Total	7.00	5.81	2.40	2.99	4.19
N	58.60	55.40	26.90	40.80	70.30

Prussia: Universities (Male)				
	<u>1887</u>	<u>1893</u>	<u>1902</u>	<u>1911</u>
e.	3.29	3.09	4.04	4.25
f.	11.76	8.76	12.23	22.57
g.	9.97	6.94	8.36	9.00
h.	3.03	1.71	1.45	1.63
Total	7.59	5.14	5.59	6.50
N	2999.10	2509.60	4235.50	6238.30

Table 4 (continued)

Germany: Higher Education

	Male		Female	
	1928	1931	1928	1931
<u>Universities</u>				
e.	16.84	17.00	4.00	5.47
f + g.	12.04	9.77	2.46	3.08
h.	3.28	2.51	.54	.60
Total	8.02	6.52	1.59	1.97
N	27808.40	23279.80	5525.20	7017.60
<u>Technische Hochschulen</u>				
e.	6.10	7.75	.12	.27
f + g.	2.14	2.27	.10	.21
h.	.72	.75	.02	.04
Total	1.55	1.67	.06	.13
N	5370.40	5954.20	229.70	457.30
<u>Other</u>				
e.	1.57	1.86	.21	.69
f + g.	1.29	1.96	.18	.68
h.	.51	.64	.04	.16
Total	.93	1.34	.11	.44
N	3221.80	4776.10	395.20	1554.00
<u>All</u>				
e.	24.51	26.60	4.33	6.43
f + g.	15.48	14.00	2.75	3.96
h.	4.50	3.89	.60	.80
Total	10.50	9.52	1.77	2.53
N	35400.60	34010.10	6150.10	9028.90

Note: e. free professionals without university degrees
 f. teachers without university degrees
 g. middle-ranking government employees
 h. white-collar workers in private firms

The final general occupational category, the working class, exhibited little demand for higher education, often even less than the peasantry. But, again, there was wide variation within the category. The rate for sons of rural laborers, where it can be determined, was much lower than that for the urban working class. And the rate for those employed by the government, for the most part postal or railroad workers, was always about 10 times that for the rest of the working class. Indeed it was frequently higher than the rates for artisans, shopkeepers and white-collar workers in private firms. These patterns go far to explain differences among the German states in the

Table 5: Rates of Enrollment in Higher Education: The Farming Sector and the Working Class

Württemberg: Universities (Male)								
	<u>1873</u>	<u>1879</u>	<u>1885</u>	<u>1891</u>	<u>1897</u>	<u>1903</u>	<u>1909</u>	<u>1933</u>
i.	.94	8.82	9.43	10.66	8.96	6.50	12.50	23.74
j.	.19	.34	.33	.23	.23	.27	.33	.33
i + j.	.19	.37	.36	.26	.25	.29	.36	.58
k.	1.30	2.87	2.35	2.14	1.98	1.37	2.45	4.22
l.								.14
m.								.03
l + m.	.06	.06	.16	.17	.09	.10	.09	.46
k + l + m.	.28	.57	.56	.54	.46	.34	.51	.83
N:l + j.	68.00	127.00	123.00	97.00	104.00	121.00	145.00	259.40
N:k + l + m.	16.00	35.00	40.00	48.00	50.00	45.00	77.00	228.60

Baden: Universities (Male)					
	<u>1873</u>	<u>1878</u>	<u>1883</u>	<u>1888</u>	<u>1893</u>
i.	.92	3.79	5.71	4.62	9.57
j.	.22	.19	.18	.34	.54
i + j.	.23	.20	.19	.35	.56
k.	1.74	1.52	1.62	2.77	2.87
l + k.	.05	.03	.01	.17	.06
k + l + m.	.35	.38	.63	.65	.57
N:l + j.	75.20	65.60	60.80	114.40	196.80
N:k + l + m.	19.60	23.30	44.70	53.10	56.20

Baden: Technische Hochschule (Male)					
	<u>1873</u>	<u>1878</u>	<u>1883</u>	<u>1888</u>	<u>1893</u>
i.	1.83	4.73	2.85	.93	.87
j.	.08	.09	.03	.02	.04
i + j.	.09	.10	.04	.03	.05
k.	.87	.70	.33	.16	.10
l + m.	0	0	.01	0	0
k + l + m.	.15	.13	.07	.03	0
N:l + j.	28.80	32.00	12.80	8.80	16.00
N:k + l + m.	8.60	7.80	5.10	2.40	.20

Table 5 (continued)

Prussia: Universities (Male)

	<u>1887</u>	<u>1893</u>	<u>1903</u>	<u>1911</u>
i.	2.06	1.62	2.36	3.05
j.	.43	.37	.47	.59
l + j.	.50	.42	.54	.67
k.	1.50	1.16	1.15	1.70
l + m.	.04	.03	.04	.06
K + l + m.	.19	.15	.16	.25
N:i + j.	2138.50	1614.30	2101.10	2587.60
N:k + l + m.	538.10	501.40	812.10	1668.10

Germany: Higher Education

	Male		Female	
	<u>1928</u>	<u>1931</u>	<u>1928</u>	<u>1931</u>
<u>Universities</u>				
i.	8.80	6.90	1.65	1.79
j.	.54	.53	.05	.07
i + j.	.69	.65	.08	.10
k.	1.85	2.44	.13	.29
l.		.28		.03
m.		.03		0
l + m.	.19	.25	.01	.03
k + l + m.	.32	.43	.02	.05
N:i + j.	4526.00	4132.00	505.50	641.30
N:i + j + k.	3030.90	4180.70	186.90	494.90
<u>Technische Hochschulen</u>				
i.	1.55	1.19	.05	.07
j.	.05	.07	0	0
i + j.	.08	.09	0	0
k.	.29	.58	.01	.03
l.		.06		0
m.		.01		0
l + m.	.02	.05	0	0
k + l + m.	.04	.10	0	0
N:l + j.	539.80	605.10	8.00	13.70
N: l + j + k.	394.50	926.30	12.80	45.00
<u>Other</u>				
i.	2.34	1.66	.09	.28
j.	.14	.24	0	.01
i + j.	.18	.27	0	.02
k.	.35	.66	.01	.10
l.		.12		.01
m.		.02		.01
l + m.	.04	.11	0	.01
k + l + m.	.06	.15	0	.02
N:i + j.	1200.80	1706.30	26.60	101.70
N:k + l + m.	578.70	1474.90	16.50	197.60

Table 5 (continued)

Germany: Higher Education (continued)				
<u>All</u>	Male		Female	
	<u>1928</u>	<u>1931</u>	<u>1928</u>	<u>1931</u>
i.	12.69	9.75	1.79	2.13
j.	.74	.84	.05	.08
i + j.	.95	1.01	.08	.12
k.	2.49	3.68	.15	.42
l.		.46		.05
m.		.06		.01
l + m.	.25	.40	.01	.04
k + l + m.	.42	.68	.02	.08
N:i + j.	6266.60	6443.40	540.10	756.70
N:k + l + m.	4004.10	6581.90	216.20	737.50

Note: i. owners of landed estates (Gutsbesitzer)
 j. land-owning peasants
 k. workers employed by the government
 l. non-agricultural workers in private firms
 m. agricultural workers

overall enrollment rate for the working class. Where there were few rural laborers in the relevant age cohort and a sizeable proportion of the working class employed by the government, as in Baden and Württemberg, the rate was higher than where larger proportions worked in agriculture, mining and factories, as in Prussia (See Table 5).

Obviously there was wide variation among occupational groups both in the level of demand for higher education and in the rate at which the level changed over time. But what was the net result? Were the German universities becoming less or more selective with time? To aid in answering these questions indices of dissimilarity have been calculated for each of the states and periods considered. The index of dissimilarity can be defined as the proportion of the "selected" population that would have to be from different categories if the distribution among the categories was to match that of the population at risk. An index of 0 means that the "selected" population is completely representative, and an index of 99 means that it is almost completely unrepresentative. (It could not be totally unrepresentative.) Comparisons among indices of dissimilarity are legitimate only when the number and specification of the categories remain constant, but this condition has been met.

When calculated for the total male population at risk, the indices of dissimilarity reveal little variation either among the German states or over time. For each of the

states university education was about equally selective, and the passage of time brought few changes. There may have been a tendency for the universities to become less selective after the war, but if this was the case the trend was not pronounced.

Of course, the results are strongly affected by two sizeable groups that never exhibited much demand for higher education, the peasantry and the working class. If the analysis is restricted to the other occupational groups—usually about 30% of the population at risk—it is clear that between unification and the Nazi seizure of power the German universities became much more representative. Apparently the general trend was only interrupted once, during the decade or so immediately preceding World War I (Table 6). These findings are consistent with the pattern revealed by the selectivity indices considered above: among the occupational groups exhibiting a moderate to high demand for higher education the greatest gains were made by groups in which the demand, at least initially, was relatively modest. To the extent these gains also outpaced those of the peasantry and the working class they tended to raise the overall indices of dissimilarity, but in this case the impression left by overall indices is misleading. Although those from the peasantry and the working class may not have gained much in the period considered, the German universities were certainly becoming less selective.

The Causes of the Transformation:

What caused the changing social composition of the German university? No attempt will be made here to answer the question conclusively. Rather, the intention is to review the major arguments that have been advanced and to offer some new hypotheses. Emphasis is, as in most earlier discussions of the subject, on the relationship between changes in the German economy and the transformation of German higher education.

Attempts to explain the social transformation of German higher education have tended to focus on five general approaches. These approaches are not mutually inconsistent, but their proponents have disagreed over their relative importance. In part this is because they have also disagreed over what it is that requires explanation: for some it is the tendency for German higher education to become more open over time, and for others it is the slow pace of change.

The first approach focuses on the relationship between the social demand for higher education and the expansion of job opportunities for the highly educated. It rests on a recognition that industrialization and the related social changes increased the demand for engineers, scientists, civil servants and members of the free professions. This demand raised the returns to investment in higher education, resulting in expanding enrollments. Most who discuss the subject are concerned with explaining the expansion of higher education, and stop here.⁸ But a few go on to argue logically enough that expansion that outstrips population growth has implications for selectivity. With expansion higher education tends to become less selective due to ceiling effects; as there is a limit to the ability of elite social groups to satisfy the rising “de-

8. J. Conrad, *Das Universitätsstudium in Deutschland während der letzten 50 Jahre* (Jena, 1884), 21-23; Conze, 676.

Table 6: Indices of Dissimilarity*

Württemberg: Universities (Male unless noted)								Male	Female
	<u>1873</u>	<u>1879</u>	<u>1885</u>	<u>1891</u>	<u>1897</u>	<u>1903</u>	<u>1909</u>	<u>1933</u>	<u>1933</u>
All Occupations	63.04	62.05	61.73	62.99	64.84	59.82	60.80	53.63	71.01
All Except Peasantry and Working Class	64.25	61.93	58.65	57.56	56.90	52.38	48.88	36.49	51.19
Baden: Universities (Male)									
	<u>1873</u>	<u>1878</u>	<u>1883</u>	<u>1888</u>	<u>1893</u>				
All Occupations	63.01	63.46	7.38	59.97	54.88				
All Except Peasantry and Working Class	66.11	64.04	60.64	52.78	43.25				
Baden: Technische Hochschule (Male)									
	<u>1873</u>	<u>1878</u>	<u>1883</u>	<u>1888</u>	<u>1893</u>				
All Occupations	66.28	66.85	76.59	77.03	75.38				
All Except Peasantry and Working Class	62.73	61.71	70.45	65.39	62.34				
Prussia: Universities (Male)									
	<u>1887</u>	<u>1893</u>	<u>1902</u>	<u>1911</u>					
All Occupations	57.57	55.57	55.79	56.77					
All Except Peasantry and Working Class	52.62	49.46	45.54	49.05					
Germany: Higher Education									
				Male				Female	
				<u>1928</u>	<u>1931</u>			<u>1928</u>	<u>1931</u>
<u>Universities</u>									
All Occupations				56.20	54.81			63.06	62.76
All Except Peasantry and Working Class				35.78	37.71			42.77	43.85
<u>Technische Hochschulen</u>									
All Occupations				59.85	56.59			70.38	67.42
All Except Peasantry and Working Class				38.10	38.62			49.81	48.96
<u>Other</u>									
All Occupations				47.94	41.53			64.80	59.47
All Except Peasantry and Working Class				30.97	29.59			44.41	41.82
<u>All</u>									
All Occupations				56.01	52.94			63.39	62.35
All Except Peasantry and Working Class				35.75	35.97			43.10	43.86

*Based on the assumption that the ratios between the rates for merchants and shopkeepers in Baden and Prussia, between the rates for middle-ranking civil servants and working-class government employees in Baden and Prussia, and between the rates for industrialists and artisans in Prussia in 1887 and 1893 were the same as in the relevant years in Württemberg. This assumption permits the same occupational categories to be used for each state, a prerequisite if the indices are to be compared across states as well as across time.

mand" for students, opportunities are opened for those lower in the social order.⁹ This is an inherently appealing argument, but for the period under consideration it should be used with caution. Prior to World War I even the social groups exhibiting the greatest demand for higher education rarely enrolled more than half their sons in higher education. Of course there may have been a rather low de facto ceiling resulting from screening at the secondary level and other factors, but if this was the case it rose considerably just before the war and during the 1920s. One possibility is that it was only in these years that families in the educated elite came to consider it imperative that their sons receive a higher education. In any event, growth in the number from this stratum in the decade before the war permitted total enrollment to increase rapidly without becoming less selective. It was only after the war, when the rate for the educated elite grew less rapidly than the overall rate, that ceiling effects seem to have become a factor.

The second approach emphasizes the growth in per capita income that accompanies industrialization. The reasoning is straightforward. Beyond that resulting from population growth, expansion in enrollment presupposes a growth in personal income. As the economy expands, more and more will be able to afford higher education, and, for a combination of consumption and investment reasons, more and more will enroll. A corollary is that social groups that are rising in status and per capita income will exhibit a rising demand for higher education.¹⁰

Another approach focuses on the relationship between fluctuations in enrollment and fluctuations in the trade cycle and/or the job market. One version, perhaps best represented by Johannes Conrad and Franz Eulenburg, emphasizes the negative correlation between the business cycle and the enrollment trend. When the economy was growing rapidly, as in the third quarter of the 19th century and the late 1890s, enrollments were relatively low, and in times of depression such as the 1880s they were high. These fluctuations in enrollment affect selectivity, with the proportions from modest backgrounds increasing when the number of students increases, and vice versa. Actually this reverses the logic of the argument, which suggests that economic depression encouraged those of modest origins to invest in more education, thus increasing enrollments and reducing selectivity.¹¹ Ludwig Cron has argued precisely the reverse, insisting that there tends to be a positive relationship between the business cycle and enrollment since relative prosperity permits more to invest in higher education.¹² Others exemplifying this approach focus not on the trade cycle generally but rather on fluctuations in perceived job opportunities for the highly educated. In their opinion enrollments stagnated or declined when the supply of university grad-

9. Jarausch, 626; Mitgau, 251-52.

10. J. Conrad, "Einige Ergebnisse der deutschen Universitätsstatistik," *Jahrbücher für Nationalökonomie und Statistik*, 87 (1906), 449-50; Eulenburg, 66; Kaelble, "Chancenungleichheit," 131-32, 136; Mitgau, 244; Riese, 49.

11. Conrad, *Das Universitätsstudium*, 21-23; Franz Eulenburg, *Die Frequenz der deutschen Universitäten von ihrer Gründung bis zur Gegenwart* (Leipzig, 1904), 256; Prahl, 312; Ringer, 84, 99.

12. Cron, 31, 38-39, 59; Riese, 49-50.

uates in the job market exceeded the demand. Fluctuations in the perceived availability of jobs not requiring a higher education are deemed irrelevant.¹³

The fourth approach emphasizes cultural rather than economic factors. Its proponents attribute much of the expansion in enrollment to the prestige enjoyed by higher education and by the highly educated. It was not the prospect of better jobs that attracted more and more to the universities, but rather the special status conferred by university attendance and the related credentials. Some go on to suggest that many of the students, particularly those of modest origins, were not rational actors in the economic sense; they failed to understand the realities of the economic and social order.¹⁴ Others imply that such individuals were acting rationally to the extent that they intentionally sacrificed their economic interests narrowly defined in order to enhance their status.¹⁵ That enhancing their status actually furthered their economic interests is not argued, of course, since to do so would be to question the independent importance of non-economic motives.

The fifth approach concentrates on governmental policies affecting the availability and cost of education. Arguments reflecting this approach have been advanced both by those who think German higher education did become more open over time and by those who disagreed. The former highlight a variety of policies allegedly directed, at least objectively, at curbing or redirecting the rising social demand for higher education.¹⁶ The latter focus on the consequences of educational policies designed to promote economic growth, political socialization or equity.¹⁷ In both cases it is assumed that governments could and did do much to regulate enrollment rates through a combination of constraints and incentives.

Aspects of all these approaches can be found in the recent literature, but the tendency has been to put the emphasis on the non-economic factors. This is particularly true of those who argue that between the mid-19th century and the 1930s German higher education did not become more open. While recognizing that economic growth contributed to a large expansion in enrollments, they argue that the effects on the social origins of students and hence on recruitment to elite occupations were insignificant.¹⁸

Those claiming that access to German higher education was actually becoming more open have also tended to stress cultural and institutional rather than economic factors. Particular attention has been given to the impact of the high status associated with university attendance and of governmental policies aimed at furthering mobility and equity. Again, the consequences of economic growth for selectivity are judged

13. Eulenburg, *Die Frequenz*, 256; Jarausch, 613, 629; Kaelble, "Chancenungleichheit," 134-36; Riese, 53.

14. Riese, 55.

15. Conrad, *Das Universitätsstudium*, 21-23; Conrad, "Einige Ergebnisse," 784-85, 792; Eulenburg, *Die Entwicklung der Universität Leipzig*, 66; Mitgau, 244.

16. Kaelble, "Chancenungleichheit," 136-48; Prahl, 283, 290-91; Riese, 48, 53-58.

17. Conrad, "Einige Ergebnisse," 440-41; Jarausch, 616-17; Kaelble, "Chancenungleichheit," 139-41.

18. Conze, 676; Kaelble, "Sozialer Aufstieg," 68-70; Kaelble, "Chancenungleichheit," 127-31, 148-49; Ringer, 97-99, 108-10; Zorn, 328-29.

insignificant.¹⁹ Yet behind these arguments lies a limited view of how economic changes could have affected enrollment patterns. Let me elaborate.

Rapid industrialization inevitably transforms the preindustrial occupational order and status hierarchy. On the one hand it provides new opportunities for upward mobility and increased consumption. On the other it threatens many of those tied to traditional occupations and social roles with economic dislocation and downward social mobility. This is all obvious enough, but the implications for educational expansion and selectivity are not. To the extent scholars have considered the links between the demand for higher education in Germany and contemporary changes in the social order, they usually have focused on upwardly mobile groups such as the entrepreneurial class. The assumption apparently has been that if economic growth causes any groups to manifest a growing demand for higher education it should be the groups gaining in status and relative income. Yet if one considers the likely consequences of *not* seeking a higher education there seems reason to give at least as much attention to those victimized by economic growth. The logic is straightforward. To the extent those facing economic dislocation and/or downward mobility are conscious of their marginal relationship to the economic and social order they can be expected to try to correct the situation. But since their marginality results from structural processes over which they have no control, correcting the situation is likely to require innovative behavior. Among the many that may exist, an obvious possibility is to invest heavily in education in the hope of entering a more promising career. This suggests that with economic growth the occupational groups that are facing real or relative deprivation will manifest a growing demand for higher education.

Did they? The evidence suggests that they did. Of the occupational groups considered here, at least four can be said to have suffered real or relative deprivation as a result of economic growth and the attendant changes in the social order: the artisans, shopkeepers, owners of landed estates, and peasants. In each of the states examined the rate of university attendance for these groups increased over time, in most cases much more rapidly than the overall rate. Consider the trends in Württemberg, the state for which the evidence is most abundant. Between 1873 and 1933 the rate for the marginal occupational groups increased two-and-a-half times as rapidly as that for the remaining groups. If the analysis is restricted to the occupations below the university-trained professionals and high government officials and above the peasantry and the working class (the occupations most responsible for the growth of German higher education in these years) the disparity is even more striking; the rate for the marginal groups increased more than five times as rapidly as that for the remaining groups. In both cases, it should be added, the rates for the marginal groups were still smaller at the end of the period, meaning that the relatively rapid growth for these groups made higher education more open.

The implications with respect to selectivity seem clear. To the extent German higher education was becoming more open between the mid-19th century and the 1930s the marginal occupational groups were largely responsible. Yet economic changes were largely responsible for the marginality of these groups and hence for their rising demand for higher education. This suggests that there was a direct and

19. Jarausch, 616–20, 626; Riese, 48.

strong causal relationship between the economic transformation of Germany and the social transformation of the German university.

But this is only a hypothesis. Skeptics could easily argue that the rising demand for higher education among the sons of artisans, shopkeepers and farmers came primarily from the segments of these groups that prospered from industrialization, not from those put on the defensive. The evidence does not permit rejecting either possibility. Nor does it justify abandoning the more conventional hypotheses. What is needed, it seems, is a flexible and multifaceted approach, one leaving room both for the conventional hypotheses and for that outlined above. One possibility would be to think in terms of an economic model in which values are assigned to the psychic as well as the monetary benefits and costs of pursuing a higher education. Such a model would permit us to integrate the approaches emphasizing economic considerations with those stressing cultural or institutional factors, and it would have the additional advantage of forcing us to think in terms of alternatives. In particular, it would require us to give attention to the psychic and monetary costs and benefits of *not* pursuing a higher education.